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ASSIGNMENT BOOKLET
3216 MATHEMATICS 33 UNIT 7

AUG 20 1991

FOR STUDENT USE ONLY

Date Module Submitted

(If label is missing
or incorrect)

Time Spent on Module

File Number

Module Number _____

FOR A.D.L.C. USE ONLY

Assigned

Teacher: _____

Module Grading: _____

Graded by: _____

Date Module Received:

Student's Questions
and Comments

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| | | |
|------|---------|-------------|
| Name | Address | Postal Code |
|------|---------|-------------|

Please verify that preprinted label is for
correct course and module.

Module Assignment
Recorded _____

Teacher's Comments:

Teacher

ALBERTA DISTANCE LEARNING CENTRE

MAILING INSTRUCTIONS FOR CORRESPONDENCE ASSIGNMENT BOOKLET

1. BEFORE MAILING YOUR ASSIGNMENT BOOKLET PLEASE SEE THAT:

- (1) All assignments are completed. If not, explain why.
- (2) Your work has been re-read to ensure accuracy in spelling and details.
- (3) The booklet cover is filled out and the correct module label is attached.

2. POSTAGE REGULATIONS

Do not enclose letters with Assignments Booklets.

Send all letters in a separate envelope.

3. POSTAGE RATES

First Class

Take your Assignment Booklet to the Post Office and have it weighed. Attach sufficient postage and a green first-class sticker to the front of the envelope, and seal the envelope. Correspondence Assignment Booklets will travel faster if first-class postage is used.

Try to mail each Assignment Booklet as soon as it has been completed.

When you register for correspondence courses, you are expected to send Assignment Booklets for correction regularly. Do not send more than one Assignment Booklet in one subject at the same time.

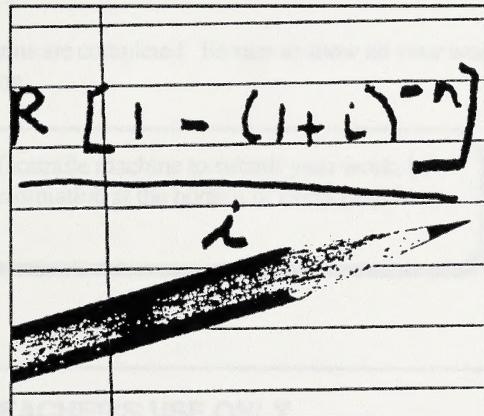
MATHEMATICS 33

Annuities

Do not round in this booklet until all calculations have been completed. You may be given the penalty marks for rounding.

Fairing?

If you are not
sure, show all
your work.
Leave space
for marking.



Unit 7

Summary

Teacher's Comments

Topic

Assignment Booklet

Topic

Topic

100

Mark Received

Assignment Booklet
Teacher's Comments

100% - 90% - 80% - 70% - 60% - 50% - 40% - 30% - 20% - 10%



**Distance
Learning**

Alberta
EDUCATION

**Mathematics 33
Assignment Booklet
Unit 7
Annuities
Alberta Distance Learning Centre
ISBN No. 0-7741-0191-1**

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Your mark on this unit will be determined by how well you answer the questions in this booklet.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate topic.

The three topics that you studied in your unit are covered in this assignment booklet. The total value of these topics is 100 marks. Each topic is divided into several questions. The value of each question is stated in the left margin.

Be sure to proofread each answer carefully.

Do not hand in this booklet until all questions are completed. Be sure to show all your work. Part marks may be given for partially correct solutions.

Faxing?

If you are using a facsimile machine to submit your work, be sure to fill in the information at the bottom of every response page.

FOR TEACHER'S USE ONLY**Summary****Teacher's Comments**

| | Total Possible Marks | Your Mark |
|---------|----------------------|-----------|
| Topic 1 | 30 | |
| Topic 2 | 35 | |
| Topic 3 | 35 | |
| | 100 | |

Topic 1: Simple Interest and Compound Interest

(2) 1. If the formula for simple interest is given by $I = P \times r \times t$, what is the formula for time t ? To find this formula isolate the t on either side of the equation.

(3) 2. How much money must Ingrid invest at 6%/a simple interest for a period of thirty-six months in order to earn interest of \$1050?

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

④ 3. Find the amount needed to repay a loan of \$5000 at the end of five years if the interest at 9%/a is compounded quarterly.

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

(3) 4. Find the principal if the interest received after two years and ten months at 12%/a simple interest was \$800.

Name of Student _____ Student I.D. # _____

Name of School _____ Date _____

(4)

5. Calculate the amount needed to repay a loan of \$6050 at the end of four years if the interest at 13%/a is compounded semiannually. How much of this amount was interest?

(4)

6. Write an equation for the amount (A) for each of the following investments.

Give your answer in the form $A = P(1+i)^n$.

a. \$1200 for $3\frac{1}{2}$ years at 4.8%/a compounded monthly

b. \$8000 for 19 years at 12.5%/a compounded semiannually

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

6

7. Mien Lui invested \$4800 at 11%/a for six years.

- a. What will be the accumulated investment if the interest is compounded quarterly?
- b. What will be the accumulated investment if the interest is compounded semiannually?
- c. What is the difference in the interest earned when the interest is compounded quarterly and when the interest is compounded semiannually?

Name of Student _____ Student I.D. # _____
Name of School _____ Date _____

(4)

8. Silas has to borrow \$7500 and needs this loan for five years. One bank lends money at a rate of 15%/a compounded monthly. Another bank lends money at 16%/a compounded annually. Which bank should he borrow from? How much would he save if he chooses the bank which charges less?

Topic 1

 marks

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

Topic 2: Introducing Annuities

(2)

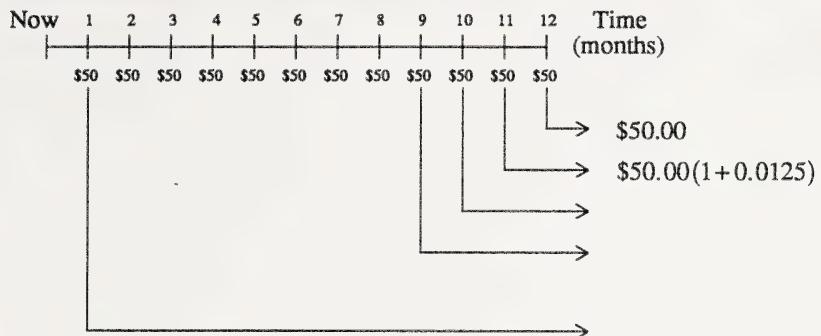
1. An investment plan in which fixed amounts of money are deposited or paid out at regular intervals over a specified period of time is called
 - A. a perpetuity
 - B. a mortgage
 - C. an instalment
 - D. an annuity

2. The formula for the amount when a sum of money is compounded over a period of time is given by
 - A. $I = P \times r \times t$
 - B. $A = P(1+i)^n$
 - C. $A = P + I$
 - D. $I = \frac{P \times r \times t}{100}$

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

(7)

3. Naresh is saving for a vacation. If he saves \$50 at the end of each month and deposits it in a bank that pays 15%/a compounded monthly, how much will he save in twelve months? Use a time line to find the amount of money saved.



| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

(4)

4. Henrietta plans to put away \$1000 each year for the next five years. She makes her deposits at the end of each year. If the bank pays interest at 5%/a compounded annually, find the accumulated amount of this annuity after each of the following. (Be sure to draw a time line first.)

a. three deposits

b. five deposits

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

(5)

5. Akeem deposited \$500 every six months for a period of five years. If the rate of interest was 7%/a compounded every six months, what was the total amount after the tenth deposit? Use a time line to calculate the amount.

(1)

6. In the formula $A = P(1+i)^n$, the exponent n stands for

- A. the number of years
- B. the number of payments per year
- C. the number of periods
- D. the number of percents

Name of Student _____

Student I.D. # _____

Name of School _____

Date _____

(1)

7. In the formula $P = \frac{A}{(1+i)^n}$, the i represents

- A. the interest per period
- B. the simple interest
- C. the annual interest rate
- D. the insurance on the loan

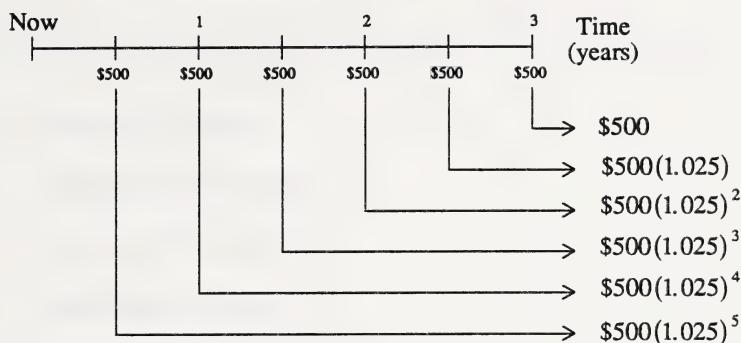
(6)

8. Find the present value if twelve equal payments of \$74 are to be made at equal intervals of one month each for a period of one year. The interest rate is 12%/a. Use a time line to calculate the present value.

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

(7)

9. The following diagram of a time line shows an annuity.



- a. How many deposits were made?
- b. How much was each deposit?
- c. What was the annual interest rate?
- d. What was the rate per period?
- e. How often were the deposits made?
- f. For what period of time was the annuity?
- g. What was the term of the annuity?

Topic 2

marks

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

Topic 3: Calculating the Amount and the Present Value for Annuities

① 1. To which of the following does the expression $\frac{R[1-(1+i)^{-n}]}{i}$ refer?

- A. amount of an annuity
- B. compound interest formula
- C. present value of an annuity
- D. simple interest formula

① 2. Which of the following statements expresses the amount of an annuity?

A. $\frac{R[(1+i)^n - 1]}{i}$

B. $P(1+i)^n$

C. $\frac{A}{(1+i)^n}$

D. $\frac{R[1-(1+i)^{-n}]}{i}$

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

(5)

3. Nakita deposits \$60 every month into an account that pays 12%/a compounded monthly. How much does she save in a year? Round your answer to the nearest dollar.

Name of Student _____

Student I.D. # _____

Name of School _____

Date _____

(5)

4. Ludwig saved \$791 at the Colonial Bank over a five-year period by making semiannual deposits. His money earned him 12%/a compounded semiannually. What was the amount of each deposit if he made one every six months? Round your answer to the nearest dollar.

Name of Student _____

Student I.D. # _____

Name of School _____

Date _____

(5)

5. What is the present value of an annuity that provides payments of \$200 paid at the end of every three months for a period of fifteen years. The interest rate is 10%/a compounded quarterly. Round your answer to the nearest dollar.

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

(6)

6. The present value of an annuity is \$2690. What is the amount of each payment if the investment is for fifteen years at 10%/a compounded semiannually and if a payment is made once every six months? Express your answer to the nearest dollar.

Name of Student _____

Student I.D. # _____

Name of School _____

Date _____

Use the **Amount of an Annuity Table** at the end of the Assignment Booklet to find the amount (A) for questions 7, 8, 9, and 10. You are given $A = Rs_{\overline{ni}}$, where R is the periodic payment, A is the total amount of the annuity, and $s_{\overline{ni}}$ is the amount of annuity of \$1 for n periods at the rate i (readings from the table).

(3)

7. $A = \$2250 s_{\overline{12}|1\%}$

(3)

8. $A = \$48.50 s_{\overline{20}|2.5\%}$

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

(3)

9. Find A if $R = \$35.25$, $n = 50$, and $i = 3\%$.

(3)

10. Find the amount of an annuity if the monthly instalment is \$72.90, the number of periods (n) is nineteen, and the rate per period (i) is 1.5%.

Topic 3

 marks

| | |
|-----------------------|----------------------|
| Name of Student _____ | Student I.D. # _____ |
| Name of School _____ | Date _____ |

Amount of an Annuity

$$S_{\bar{n}i} = \frac{(1+i)^n - 1}{i}$$

| n | $\frac{1}{2}\%$ | 1% | $1\frac{1}{2}\%$ | 2% | $2\frac{1}{2}\%$ | 3% | $3\frac{1}{2}\%$ | n |
|----------|-----------------------------------|-----------|------------------------------------|-----------|------------------------------------|-----------|------------------------------------|----------|
| 1 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1 |
| 2 | 2.00500 | 2.01000 | 2.01500 | 2.02000 | 2.02500 | 2.03000 | 2.03500 | 2 |
| 3 | 3.01503 | 3.03010 | 3.04523 | 3.06040 | 3.07563 | 3.09090 | 3.10623 | 3 |
| 4 | 4.03010 | 4.06040 | 4.09090 | 4.12161 | 4.15252 | 4.18363 | 4.21404 | 4 |
| 5 | 5.05025 | 5.10101 | 5.15227 | 5.20404 | 5.25633 | 5.30914 | 5.36247 | 5 |
| 6 | 6.07550 | 6.15202 | 6.22955 | 6.30812 | 6.38774 | 6.46841 | 6.55015 | 6 |
| 7 | 7.10588 | 7.21354 | 7.32299 | 7.43428 | 7.54743 | 7.66246 | 7.77948 | 7 |
| 8 | 8.14141 | 8.28567 | 8.43284 | 8.58297 | 8.73612 | 8.89237 | 9.05169 | 8 |
| 9 | 9.18212 | 9.36853 | 9.55933 | 9.75463 | 9.95452 | 10.15911 | 10.36850 | 9 |
| 10 | 10.22803 | 10.46221 | 10.70272 | 10.94972 | 11.20338 | 11.46388 | 11.73139 | 10 |
| 11 | 11.27917 | 11.56683 | 11.86326 | 12.16872 | 12.48347 | 12.80780 | 13.14199 | 11 |
| 12 | 12.33556 | 12.68250 | 13.04121 | 13.41209 | 13.79555 | 14.19203 | 14.60196 | 12 |
| 13 | 13.39724 | 13.80933 | 14.23683 | 14.68033 | 15.14044 | 15.61779 | 16.11303 | 13 |
| 14 | 14.46423 | 14.94742 | 15.45088 | 15.97394 | 16.51895 | 17.08632 | 17.67698 | 14 |
| 15 | 15.53655 | 16.09690 | 16.68214 | 17.29342 | 17.93193 | 18.59891 | 19.29568 | 15 |
| 16 | 16.61423 | 17.25786 | 17.93237 | 18.63929 | 19.38022 | 20.15688 | 20.97103 | 16 |
| 17 | 17.69730 | 18.43044 | 19.20136 | 20.01207 | 20.86473 | 21.76159 | 22.70502 | 17 |
| 18 | 18.78579 | 19.61475 | 20.48938 | 21.41231 | 22.38635 | 23.41444 | 24.49969 | 18 |
| 19 | 19.87972 | 20.81090 | 21.79672 | 22.84056 | 23.94601 | 25.11687 | 26.35718 | 19 |
| 20 | 20.97912 | 22.01900 | 23.12367 | 24.29737 | 25.54466 | 26.87037 | 28.27968 | 20 |
| 21 | 22.08401 | 23.23919 | 24.47052 | 25.78332 | 27.18327 | 28.67649 | 30.26947 | 21 |
| 22 | 23.19443 | 24.47159 | 25.83758 | 27.29898 | 28.86286 | 30.53678 | 32.32890 | 22 |
| 23 | 24.31044 | 25.71630 | 27.22514 | 28.84496 | 30.58443 | 32.45288 | 34.46041 | 23 |
| 24 | 25.43196 | 26.97346 | 28.63352 | 30.42186 | 32.34904 | 34.42647 | 36.66653 | 24 |
| 25 | 26.55912 | 28.24320 | 30.06302 | 32.03030 | 34.15776 | 36.45926 | 38.94986 | 25 |
| 26 | 27.69191 | 29.52563 | 31.51397 | 33.67091 | 36.01171 | 38.55304 | 41.31310 | 26 |
| 27 | 28.83037 | 30.82089 | 32.98668 | 35.34432 | 37.91200 | 40.70963 | 43.75906 | 27 |
| 28 | 29.97452 | 32.12910 | 34.48148 | 37.05121 | 39.85980 | 42.93092 | 46.29063 | 28 |
| 29 | 31.12439 | 33.45039 | 35.99870 | 38.79223 | 41.85630 | 45.21885 | 48.91080 | 29 |
| 30 | 32.28002 | 34.78489 | 37.53868 | 40.56808 | 43.90270 | 47.57546 | 51.62268 | 30 |
| 31 | 33.44142 | 36.13274 | 39.10176 | 42.37944 | 46.00027 | 50.00268 | 54.42947 | 31 |
| 32 | 34.60862 | 37.49408 | 40.68829 | 44.22703 | 48.15028 | 52.50276 | 57.33450 | 32 |
| 33 | 35.78167 | 38.86901 | 42.29861 | 46.11157 | 50.35403 | 55.07784 | 60.34121 | 33 |
| 34 | 36.96058 | 40.25770 | 43.93309 | 48.03380 | 52.61289 | 57.73018 | 63.45315 | 34 |
| 35 | 38.14538 | 41.66028 | 45.59209 | 49.99448 | 54.92821 | 60.46208 | 66.67401 | 35 |
| 36 | 39.33611 | 43.07688 | 47.27597 | 51.99437 | 57.30141 | 63.27594 | 70.00760 | 36 |
| 37 | 40.53279 | 44.50765 | 48.98511 | 54.03425 | 59.73395 | 66.17422 | 73.45787 | 37 |
| 38 | 41.73545 | 45.95272 | 50.71989 | 56.11944 | 62.22730 | 69.15945 | 77.02889 | 38 |
| 39 | 42.94413 | 47.41225 | 52.48068 | 58.23724 | 64.78298 | 72.23423 | 80.72491 | 39 |
| 40 | 44.15885 | 48.88637 | 54.26789 | 60.40198 | 67.40255 | 75.40126 | 84.55028 | 40 |
| 41 | 45.37964 | 50.37524 | 56.08191 | 62.61002 | 70.08762 | 78.66330 | 88.50954 | 41 |
| 42 | 46.60654 | 51.87899 | 57.92314 | 64.86222 | 72.83981 | 82.02320 | 92.60787 | 42 |
| 43 | 47.83957 | 53.39778 | 59.79199 | 67.15947 | 75.66080 | 85.48389 | 96.84863 | 43 |
| 44 | 49.07877 | 54.93176 | 61.68887 | 69.50266 | 78.55232 | 89.04841 | 101.23831 | 44 |
| 45 | 50.32416 | 56.48107 | 63.61420 | 71.89271 | 81.51613 | 92.71986 | 105.78162 | 45 |
| 46 | 51.57579 | 58.04589 | 65.56841 | 74.33056 | 84.55403 | 96.50146 | 110.48403 | 46 |
| 47 | 52.83366 | 59.62634 | 67.55194 | 76.81718 | 87.66789 | 100.39650 | 115.35097 | 47 |
| 48 | 54.09783 | 61.22261 | 69.56522 | 79.35352 | 90.85958 | 104.40840 | 120.38826 | 48 |
| 49 | 55.36832 | 62.83483 | 71.60870 | 81.94059 | 94.13107 | 108.54065 | 125.60185 | 49 |
| 50 | 56.64516 | 64.46318 | 73.68283 | 84.57940 | 97.48435 | 112.79687 | 130.99791 | 50 |

Amount of an Annuity

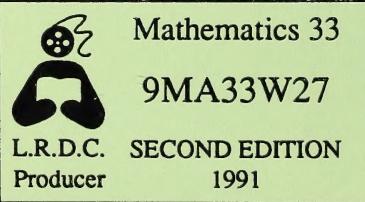
$$S_{\bar{n}i} = \frac{(1+i)^n - 1}{i}$$

| n | 4% | 5% | 6% | 7% | 8% | 9% | 10% | n |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|----------|
| 1 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1.00000 | 1 |
| 2 | 2.04000 | 2.05000 | 2.06000 | 2.07000 | 2.08000 | 2.09000 | 2.10000 | 2 |
| 3 | 3.12160 | 3.15250 | 3.18360 | 3.21490 | 3.24640 | 3.27810 | 3.31000 | 3 |
| 4 | 4.24646 | 4.31013 | 4.37462 | 4.43994 | 4.50611 | 4.57313 | 4.64100 | 4 |
| 5 | 5.41632 | 5.52563 | 5.63709 | 5.75074 | 5.86660 | 5.98471 | 6.10510 | 5 |
| 6 | 6.63298 | 6.80191 | 6.97532 | 7.15329 | 7.33593 | 7.52333 | 7.71561 | 6 |
| 7 | 7.89829 | 8.14201 | 8.39384 | 8.65402 | 8.92280 | 9.20043 | 9.48717 | 7 |
| 8 | 9.21423 | 9.54911 | 9.89747 | 10.25980 | 10.63663 | 11.02847 | 11.43589 | 8 |
| 9 | 10.58280 | 11.02656 | 11.49132 | 11.97799 | 12.48756 | 13.02104 | 13.57948 | 9 |
| 10 | 12.00611 | 12.57789 | 13.18079 | 13.81645 | 14.48656 | 15.19293 | 15.93742 | 10 |
| 11 | 13.48635 | 14.20679 | 14.97164 | 15.78360 | 16.64549 | 17.56029 | 18.53117 | 11 |
| 12 | 15.02581 | 15.91713 | 16.86994 | 17.88845 | 18.97713 | 20.14072 | 21.38428 | 12 |
| 13 | 16.62684 | 17.71298 | 18.88214 | 20.14064 | 21.49530 | 22.95338 | 24.52271 | 13 |
| 14 | 18.29191 | 19.59863 | 21.01507 | 22.55049 | 24.21492 | 26.01919 | 27.97498 | 14 |
| 15 | 20.02359 | 21.57856 | 23.27597 | 25.12902 | 27.15211 | 29.36092 | 31.77248 | 15 |
| 16 | 21.82453 | 23.65749 | 25.67253 | 27.88805 | 30.32428 | 33.00330 | 35.94973 | 16 |
| 17 | 23.69751 | 25.84037 | 28.21288 | 30.84022 | 33.75023 | 36.97370 | 40.54470 | 17 |
| 18 | 25.64541 | 28.13238 | 30.90565 | 33.99903 | 37.45024 | 41.30134 | 45.59917 | 18 |
| 19 | 27.67123 | 30.53900 | 33.75999 | 37.37896 | 41.44626 | 46.01846 | 51.15909 | 19 |
| 20 | 29.77808 | 33.06595 | 36.78559 | 40.99549 | 45.76196 | 51.16012 | 57.27500 | 20 |
| 21 | 31.96920 | 35.71925 | 39.99273 | 44.86518 | 50.42292 | 56.76453 | 64.00250 | 21 |
| 22 | 34.24797 | 38.50521 | 43.39229 | 49.00574 | 55.45676 | 62.87334 | 71.40275 | 22 |
| 23 | 36.61789 | 41.43048 | 46.99583 | 53.43614 | 60.89330 | 69.53194 | 79.54302 | 23 |
| 24 | 39.08260 | 44.50200 | 50.81558 | 58.17667 | 66.76476 | 76.78981 | 88.49733 | 24 |
| 25 | 41.64591 | 47.72710 | 54.86451 | 63.24904 | 73.10594 | 84.70090 | 98.34706 | 25 |
| 26 | 44.31174 | 51.11345 | 59.15638 | 68.67647 | 79.95442 | 93.32398 | 109.18177 | 26 |
| 27 | 47.08421 | 54.66913 | 63.70577 | 74.48382 | 87.35077 | 102.72313 | 121.09994 | 27 |
| 28 | 49.96758 | 58.40258 | 68.52811 | 80.69769 | 95.33883 | 112.96822 | 134.20994 | 28 |
| 29 | 52.96629 | 62.32271 | 73.63980 | 87.34653 | 103.96594 | 124.13536 | 148.63093 | 29 |
| 30 | 56.08494 | 66.43885 | 79.05819 | 94.46079 | 113.28321 | 136.30754 | 164.49402 | 30 |
| 31 | 59.32834 | 70.76079 | 84.80168 | 102.07304 | 123.34587 | 149.57522 | 181.94342 | 31 |
| 32 | 62.70125 | 75.29883 | 90.88978 | 110.21815 | 134.21354 | 164.03699 | 201.13777 | 32 |
| 33 | 66.20953 | 80.06377 | 97.34316 | 118.93343 | 145.95062 | 179.80032 | 222.25154 | 33 |
| 34 | 69.85791 | 85.06697 | 104.18375 | 128.25876 | 158.62667 | 196.98234 | 245.47670 | 34 |
| 35 | 73.65222 | 90.32031 | 111.43478 | 138.23688 | 172.31680 | 215.71075 | 271.02437 | 35 |
| 36 | 77.59831 | 95.83632 | 119.12087 | 148.91346 | 187.10215 | 236.12472 | 299.12681 | 36 |
| 37 | 81.70225 | 101.62814 | 127.26812 | 160.33740 | 203.07032 | 258.37595 | 330.03949 | 37 |
| 38 | 85.97034 | 107.70955 | 135.90421 | 172.56102 | 220.31595 | 282.62978 | 364.04343 | 38 |
| 39 | 90.40915 | 114.09502 | 145.05846 | 185.64029 | 238.94122 | 309.06646 | 401.44778 | 39 |
| 40 | 95.02552 | 120.79977 | 154.76197 | 199.63511 | 259.05652 | 337.88245 | 442.59256 | 40 |
| 41 | 99.82654 | 127.83976 | 165.04768 | 214.60957 | 280.78104 | 369.29187 | 487.85181 | 41 |
| 42 | 104.81960 | 135.23175 | 175.95054 | 230.63224 | 304.24352 | 403.52813 | 537.63699 | 42 |
| 43 | 110.01238 | 142.99337 | 187.50758 | 247.77650 | 329.58301 | 440.84566 | 592.40069 | 43 |
| 44 | 115.41288 | 151.14301 | 199.75803 | 266.12085 | 356.94965 | 481.52177 | 652.64076 | 44 |
| 45 | 121.02939 | 159.70016 | 212.74351 | 285.74931 | 386.50562 | 525.85873 | 718.90484 | 45 |
| 46 | 126.87057 | 168.68516 | 226.50812 | 306.75176 | 418.42607 | 574.18602 | 791.79532 | 46 |
| 47 | 132.94539 | 178.11942 | 241.09861 | 329.22439 | 452.90015 | 626.86276 | 871.97485 | 47 |
| 48 | 139.26321 | 188.02539 | 256.56453 | 353.27009 | 490.13216 | 684.28041 | 960.17234 | 48 |
| 49 | 145.83373 | 198.42666 | 272.95840 | 378.99900 | 530.34274 | 746.86565 | 1057.18957 | 49 |
| 50 | 152.66708 | 209.34800 | 290.33590 | 406.52893 | 573.77016 | 815.08356 | 1163.90853 | 50 |
| n | 4% | 5% | 6% | 7% | 8% | 9% | 10% | n |

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